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ABSTRACT

This report presents results of statistical analysis of the 1993 federal "Survey on Deaf and Hard of Hearing Students in Postsecondary Education." Data were collected from 982 of the nation's 2-year and 4-year postsecondary institutions (Gallaudet University and the National Technical Institute for the Deaf were not included) and were weighted to provide national estimates. Highlights of findings include: (1) about half of the nation's 5,000 postsecondary institutions enrolled one or more students who identified themselves as deaf or hard of hearing in the last 4 years; (2) public institutions were much more likely than private institutions to enroll such students (79 percent versus 29 percent); (3) a total of 20,040 deaf or hard of hearing students were identified (an increase of approximately 3,000 students since 1989); (4) about a third of the institutions provided special support services to a total of 16,100 students; (5) classroom notetakers, sign language interpreters, and assistive listening devices were the major support services provided. This report provides detailed analysis in narrative, tables, and figures on: enrollment in postsecondary institutions, provision of support services, types of support services provided, problems with providing support services, and information that institutions would find useful in providing services. Additional information details the survey methodology and data reliability. Two appendices provide tables of standard errors and the survey questionnaire. Contains 12 references. (DB)

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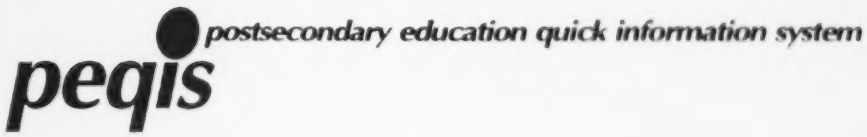

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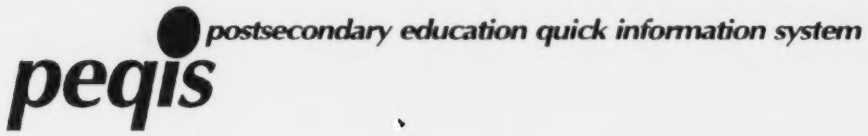

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Highlights

The *Survey on Deaf and Hard of Hearing Students in Postsecondary Education* was requested by the Office of Special Education and Rehabilitative Services of the U.S. Department of Education. This survey was intended to obtain information about the range of postsecondary institutions in which deaf and hard of hearing students enroll, the number of deaf and hard of hearing students enrolled at these institutions, and the support services provided to these students by the postsecondary institutions. Information about deaf and hard of hearing students was limited to those who had identified themselves to the institution as deaf or hard of hearing, since these were the only students about whom the institutions could report. The information presented does not include Gallaudet University and the National Technical Institute for the Deaf, since the intent of the survey was to obtain information about deaf and hard of hearing students enrolled at institutions other than these two federally funded national programs for persons who are deaf. Data were collected from 2-year and 4-year postsecondary education institutions in spring 1993, and were weighted to provide national estimates.

- About half (47 percent) of the nation's 5,000 2-year and 4-year postsecondary education institutions enrolled one or more students who identified themselves to the institution as deaf or hard of hearing in the last 4 academic years (1989-90 through 1992-93; table 1). This represents about 2,350 institutions. Public institutions were much more likely than private institutions to enroll such students (79 versus 29 percent).

- There was some fluctuation from year to year in which institutions enrolled deaf and hard of hearing students. Of the 2,350 institutions that enrolled any such students in the last 4 academic years, 13 percent did not enroll any deaf or hard of hearing students in academic year 1992-93 (figure 2).

- Of the estimated 20,040 students that institutions could identify as deaf or hard of hearing enrolled in academic year 1992-93, there were 4,520 deaf students, 7,770 hard of hearing students, and 7,750 students in the combined deaf or hard of hearing (i.e., the institution did not distinguish between deaf and hard of hearing) category (table 2). The 20,040 students represent an increase of approximately 3,000 students since academic year 1989-90.

- About a third (37 percent) of the 5,000 2-year and 4-year postsecondary education institutions provided special support services designed for deaf and hard of hearing students to such students in academic years 1989-90 through 1992-93 (table 6). This represents about 1,850 institutions. About three-quarters (79 percent) of the institutions that enrolled any deaf or hard of hearing students in 1989-90 through 1992-93 reported providing support services to deaf or hard of hearing students during those years.

- In academic year 1992-93, some 16,100 deaf and hard of hearing students were provided with special support services by 2-year and 4-year postsecondary education institutions (table 7). Institutions reported providing services to 4,120 deaf students, 5,270 hard of hearing students, and 6,720 students whom the institutions did not distinguish as deaf or hard of hearing.

- Classroom notetakers were provided to deaf and hard of hearing students by 75 percent of the institutions that provided any support services to deaf and hard of hearing students in the last 4 academic years (figure 4). About two-thirds of these institutions provided sign language interpreters (67 percent) and tutors to assist with ongoing coursework (65 percent). Assistive listening devices were provided by 33 percent of the institutions that had provided any support services. Oral interpreters were provided by 20 percent of the institutions. About a quarter (29 percent) of the institutions that had provided any support services indicated that they provided some other type of support service. Other services frequently mentioned were testing accommodations, counseling or advising, assistance with registration, classroom seating arrangements, tape recording of class sessions, and advocacy or consultation with instructors.

- During academic year 1992-93, 2-year and 4-year postsecondary education institutions provided 8,700 deaf and hard of hearing students with classroom notetakers, 8,100 with sign language interpreters, 5,320 with tutors to assist with ongoing coursework, 1,070 with assistive listening devices, and 970 with oral interpreters (table 10). Institutions reported providing other support services of some kind to 3,700 deaf and hard of hearing students in 1992-93.

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Background

The federal government has supported postsecondary education for deaf persons for over a century, helping to establish Gallaudet College (now Gallaudet University) in 1864. The establishment of the National Technical Institute for the Deaf (NTID) at Rochester Institute of Technology, mandated by Congress in 1968 through the National Technical Institute for the Deaf Act (PL 89-36), created the second federally funded national postsecondary education program for persons who are deaf. A great deal of information is known about these two federally funded national programs and about the students who attend these programs. In 1990, these two institutions enrolled 3,079 deaf students and offered more than 30 areas of study leading to certificates and associate's, bachelor's, master's, and doctor's degrees (Rawlings et al. 1991). However, except for a few self-report studies of various groups of postsecondary students (e.g., the National Postsecondary Student Aid Study, discussed in more detail in the methodology section of this report), little information has been available about deaf and hard of hearing students who attend other postsecondary institutions. Little has been known about the range of postsecondary institutions in which deaf and hard of hearing students enroll, the number of deaf and hard of hearing students enrolled at these institutions, and the support services provided to these students by the postsecondary institutions.

The *Survey on Deaf and Hard of Hearing Students in Postsecondary Education* was requested by the Office of Special Education and Rehabilitative Services of the U.S. Department of Education to obtain information from postsecondary education institutions about these issues. The survey was designed to answer the following questions about deaf and hard of hearing students and the services provided to them at postsecondary institutions:

- In what kinds of 2-year and 4-year postsecondary education institutions do students who have identified themselves to the institution as deaf or hard of hearing enroll?
- How many students who have identified themselves to the institution as deaf or hard of hearing have enrolled in these postsecondary institutions in each of the last 4 academic years?
- How many students have been provided with any support services designed for deaf and hard of hearing students by the postsecondary institutions in the last 4 academic years?
- How many students have been provided with various kinds of support services designed for deaf and hard of hearing students?
- Has the institution been unable to provide some requested support services for deaf and hard of hearing students, and if so, which services, and why could the institution not provide them?
- What person or office on campus is the primary point of contact for the provision of support services to deaf and hard of hearing students?

- What kinds of information (e.g., about federal legislation, technologies for service provision, or specific technical assistance) would be most useful to institutions in regard to providing support services to deaf and hard of hearing students?

- What information delivery mechanisms (e.g., newsletter, electronic bulletin board) would institutions be most likely to use to obtain information about providing support services to deaf and hard of hearing students?

Information about deaf and hard of hearing students was collected about only those who had identified themselves to the institution as deaf or hard of hearing, because preliminary work on the survey indicated that these were the only students about whom the institutions could report. Students who identify themselves to the institution as deaf or hard of hearing are a subset of all deaf and hard of hearing students, since some deaf and hard of hearing students may choose not to identify themselves to their institutions. The information presented does not include Gallaudet University or the National Technical Institute for the Deaf, since the intent of the survey was to obtain information about deaf and hard of hearing students enrolled at institutions other than these two federally funded national programs for persons who are deaf.

The following institutional characteristics, widely used for analyzing data on postsecondary education, were used as independent variables for analyzing the survey data:

- *Level:* 2-year, 4-year (including graduate-level). Two-year institutions are defined as institutions at which the highest level of offering is at least 2 but less than 4 years (below the baccalaureate degree); 4-year institutions are those at which the highest level of offering is 4 or more years (baccalaureate or higher degree).[1]

- *Control:* public, private. Private comprises private nonprofit and private for-profit institutions; these private institutions are reported together because there were too few private for-profit institutions to report them as a separate category.

- *Region:* Northeast, Southeast, Central, and West, based on the National Assessment of Educational Progress (NAEP) definitions of region. The states in each region are as follows:

  -- *Northeast:* Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

  -- *Southeast:* Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Puerto Rico, South Carolina, Tennessee, Virginia, and West Virginia.

[1]Definitions for level are from the data file documentation for the Integrated Postsecondary Education Data System (IPEDS) Institutional Characteristics file, U.S. Department of Education, National Center for Education Statistics.

-- *Central:* Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

-- *West:* Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oklahoma, Oregon, Texas, Utah, Washington, and Wyoming.

- *Size of institution:* less than 3,000 students (small), 3,000 to 9,999 students (medium), and 10,000 or more students (large).

The survey was conducted in spring 1993 by the National Center for Education Statistics using the Postsecondary Education Quick Information System (PEQIS). PEQIS is designed to quickly collect limited amounts of policy-relevant information from a previously recruited nationally representative stratified sample of postsecondary institutions. PEQIS surveys are generally limited to 2 to 3 pages of questions with a response burden of 30 minutes per respondent.[2] The survey was mailed to the PEQIS survey coordinators at 1,036 2-year and 4-year postsecondary education institutions (both higher education and other postsecondary institutions).[3] Coordinators were told that the survey was designed to be completed by the person or office at the institution that had the most information about deaf and hard of hearing students. Completed questionnaires were received from 982 of the 1,025 eligible institutions, for an unweighted survey response rate of 96 percent (the weighted survey response rate is 97 percent). Data were adjusted for questionnaire nonresponse and weighted to provide national estimates. The section of this report on survey methodology and data reliability provides a more detailed discussion of the sample and survey methodology. The survey questionnaire is reproduced in appendix B.

All specific statements of comparison made in this report have been tested for statistical significance through chi-square tests and t-tests adjusted for multiple comparisons using the Bonferroni adjustment, and are significant at the 95 percent confidence level or better. However, not all statistically different comparisons have been presented, since some were not of substantive importance. All estimates for the 1989-90, 1990-91, 1991-92, and 1992-93 academic years are based on data reported by the institution in spring 1993.

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[2]Additional information about PEQIS is presented in the methodology section of this report.

[3]Postsecondary education is the provision of a formal instructional program whose curriculum is designed primarily for students beyond the compulsory age for high school. This includes programs whose purpose is academic, vocational, and continuing professional education, and excludes avocational and adult basic education (U.S. Department of Education 1992). Higher education institutions are institutions accredited at the college level by an agency recognized by the Secretary, U.S. Department of Education, and are a subset of all postsecondary education institutions.

Enrollment in Postsecondary Education Institutions

Respondents were asked whether their institutions had enrolled any students in the last 4 academic years (1989-90 through 1992-93) who identified themselves to the institution as deaf or hard of hearing, and if so, how many such students had been enrolled in each of the 4 academic years. Respondents were instructed to report undergraduate and graduate/professional students separately, and to report deaf students separately from hard of hearing students if possible. If it was not possible to report deaf and hard of hearing students separately, they were asked to report these students together in a combined category.[4] Information about deaf and hard of hearing students was limited to those who had identified themselves to the institution as deaf or hard of hearing, since institutions indicated that these were the only deaf and hard of hearing students about whom they could report. As stated earlier, the information presented does not include Gallaudet University and the National Technical Institute for the Deaf.

Percentage of Institutions Enrolling Students

About half of the nation's 5,000 2-year and 4-year postsecondary education institutions enrolled one or more students who identified themselves to the institution as deaf or hard of hearing in at least one of the last 4 academic years (table 1). This represents about 2,350 institutions. Public institutions were much more likely than private institutions to enroll deaf and hard of hearing students (79 versus 29 percent). Almost all medium and large institutions had some deaf and hard of hearing students (93 and 97 percent, respectively), compared with 33 percent of the small institutions. The proportion of institutions enrolling these students did not vary by level of the institution (2-year or 4-year) or region of the country in which the institution was located.

A smaller proportion of institutions enrolled deaf and hard of hearing students in **all** 4 academic years than enrolled such students in **any** (one or more) of the last 4 academic years. Approximately a quarter of the institutions enrolled deaf or hard of hearing students in **all** 4 academic years, compared with 47 percent enrolling such students in **any** of the last 4 academic years (table 1). The pattern by institutional characteristics of institutions enrolling these students in all 4 academic years is similar to the pattern of institutions enrolling these students in any of the last 4 academic years.

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[4]Institutions were not provided with definitions of deaf and hard of hearing for use in this survey, since there are no standard definitions or ways of classifying these two groups. However, the following general definitions may assist the reader: Hearing impaired is the generic term used to indicate any degree of hearing loss -- from mild to profound; it includes both deaf and hard of hearing. Deafness refers to a profound degree of hearing loss that prevents understanding speech through the ear. Hard of hearing refers to a mild to moderate hearing loss that may or may not be corrected with amplification (Research and Training Center on Independent Living 1990).

Table 1.--Number and percent of 2-year and 4-year postsecondary education institutions that enrolled deaf or hard of hearing students in any (one or more) of the 4 academic years 1989-90 through 1992-93, and the number and percent of institutions that enrolled deaf or hard of hearing students in all 4 academic years, by institutional characteristics: 1993

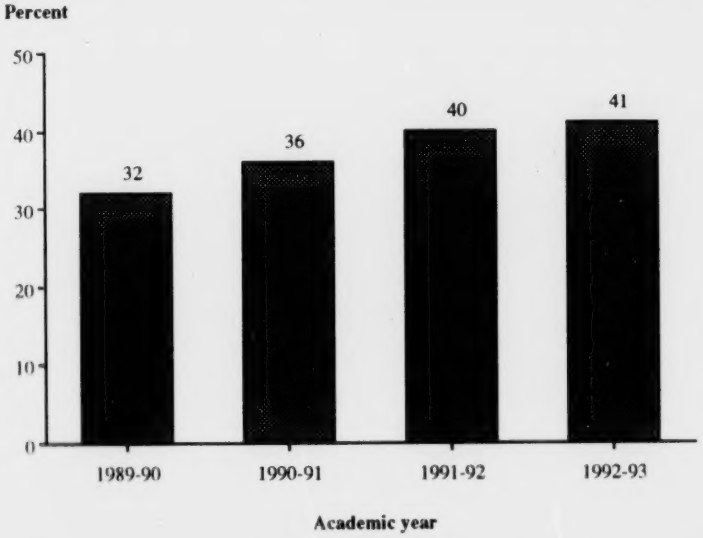
Institutional characteristic	Enrolled deaf or hard of hearing students in any (one or more) of the 4 years (1989-90 through 1992-93)		Enrolled deaf or hard of hearing students in all 4 years (1989-90 through 1992-93)	
	Number	Percent	Number	Percent
All institutions	2,350	47	1,360	27
Level				
2-year	1,150	46	690	28
4-year	1,200	48	670	27
Control				
Public	1,420	79	1,080	60
Private	940	29	290	9
Region				
Northeast	580	46	320	25
Southeast	620	52	320	27
Central	610	46	350	26
West	540	44	370	30
Size of institution				
Less than 3,000	1,280	33	490	13
3,000 to 9,999	710	93	520	68
10,000 or more	360	97	350	94

NOTE: Information about deaf and hard of hearing students represents only those students who identified themselves to their institution as deaf or hard of hearing, since these were the only students about whom the institutions could report. Data for all 4 academic years were reported in 1993. Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf. The numbers of institutions have been rounded to the nearest 10. Numbers may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

A larger percentage of institutions enrolled students who identified themselves to the institution as deaf or hard of hearing in 1992-93 than in 1989-90 (figure 1).[5] In 1989-90, about a third of institutions enrolled students who identified themselves to the institution as deaf or hard of hearing; by 1992-93, the proportion of institutions enrolling such students had risen to 41 percent.

Figure 1.--Percent of 2-year and 4-year postsecondary education institutions that enrolled any deaf or hard of hearing students during academic years 1989-90 through 1992-93: 1993



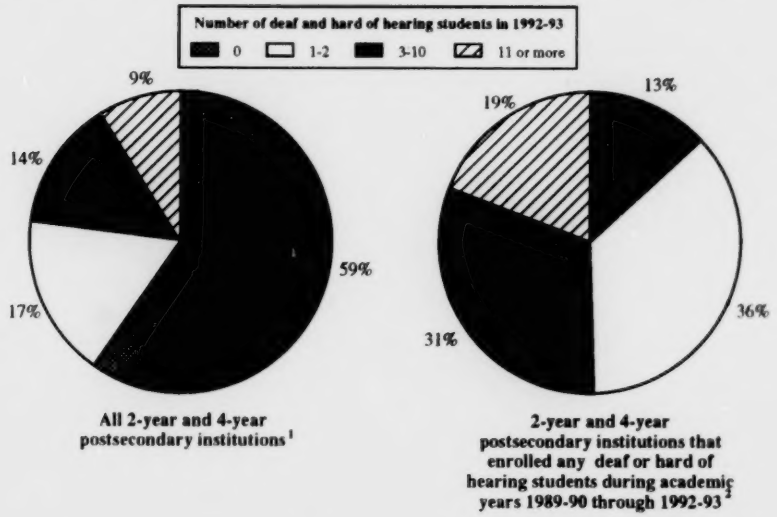
NOTE: Information about deaf and hard of hearing students represents only those students who identified themselves to their institution as deaf or hard of hearing, since these were the only students about whom the institutions could report. Data for all 4 academic years were reported in 1993. Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

[5]Data for all 4 academic years were reported by the institutions in spring 1993.

In 1992-93, 59 percent of the nation's 5,000 2-year and 4-year postsecondary education institutions did not enroll any deaf or hard of hearing students; only 9 percent enrolled 11 or more such students (figure 2). There was some fluctuation from year to year in which institutions enrolled deaf and hard of hearing students. For example, of the 2,350 institutions that enrolled any deaf or hard of hearing students in the last 4 academic years, 13 percent did not enroll any deaf or hard of hearing students in academic year 1992-93. Thus, some institutions that had enrolled deaf and hard of hearing students in earlier years did not enroll such students in 1992-93.

Figure 2.--Percent of 2-year and 4-year postsecondary education institutions by the number of deaf and hard of hearing students enrolled in academic year 1992-93: 1993



[1]Percents are based on the 5,000 2-year and 4-year postsecondary education institutions in the United States.

[2]Percents are based on 2,350 2-year and 4-year postsecondary education institutions that enrolled deaf or hard of hearing students in any (one or more) of the academic years 1989-90 through 1992-93.

NOTE: Information about deaf and hard of hearing students represents only those students who identified themselves to their institution as deaf or hard of hearing, since these were the only students about whom the institutions could report. Data for all 4 academic years were reported in 1993. Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf. Percents may not sum to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Number of Students Enrolled

During the most recently completed academic year (1992-93), an estimated 20,040 students who identified themselves to the institution as deaf or hard of hearing were enrolled in 2-year and 4-year postsecondary education institutions (table 2).[6] This is an increase of approximately 3,000 students since academic year 1989-90, the first year for which information was requested by this survey. For 1992-93, institutions reported 4,520 deaf students and 7,770 hard of hearing students; 7,750 students were reported in the combined deaf or hard of hearing (i.e., the institution did not distinguish between deaf and hard of hearing) category (table 2). Thus, for 1992-93, about a quarter of the students were reported as deaf, and a little more than a third of the students were reported as hard of hearing -- about the same proportions as for 1989-90. An average (mean) of 9.8 students identified themselves to the institution as deaf or hard of hearing at each institution that enrolled any such students in 1992-93 (not shown in tables).

Table 2.--Number of deaf and hard of hearing students enrolled at 2-year and 4-year postsecondary education institutions during academic years 1989-90 through 1992-93, by hearing category: 1993

Hearing category	1989-90	1990-91	1991-92	1992-93
Total	17,030	18,340	19,450	20,040
Deaf	3,610	3,750	4,220	4,520
Hard of hearing	5,950	6,740	7,500	7,770
Did not distinguish between deaf and hard of hearing	7,470	7,860	7,730	7,750

NOTE: The number of deaf and hard of hearing students presented here represents only those students who identified themselves to their institution as deaf or hard of hearing, since these were the only students about whom the institutions could report. Data for all 4 academic years were reported in 1993. Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf. The numbers of students have been rounded to the nearest 10. Numbers may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

[6]To put this number into context, the National Center for Education Statistics estimates that there were 14.4 million students enrolled in 2-year and 4-year postsecondary education institutions in fall 1991 (U.S. Department of Education 1993, Table 166). This means that about one-tenth of 1 percent of the students enrolled at 2-year and 4-year postsecondary education institutions identified themselves to their institution as deaf or hard of hearing.

Most deaf and hard of hearing students were undergraduates. Of the 20,040 such students enrolled in 1992-93, 18,600 (or 93 percent) were undergraduates, and 1,440 were graduate/professional students (table 3).[7] The proportions of undergraduate and graduate/professional deaf and hard of hearing students have remained stable since 1989-90.

Table 3.--Number of deaf and hard of hearing students enrolled at 2-year and 4-year postsecondary education institutions during academic years 1989-90 through 1992-93, by academic level: 1993

Academic level	1989-90	1990-91	1991-92	1992-93
All levels	17,030	18,340	19,450	20,040
Undergraduate	16,020	17,170	18,140	18,600
Graduate/professional	1,010	1,170	1,310	1,440

NOTE: The number of deaf and hard of hearing students presented here represents only those students who identified themselves to their institution as deaf or hard of hearing, since these were the only students about whom the institutions could report. Data for all 4 academic years were reported in 1993. Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf. The numbers of students have been rounded to the nearest 10.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

[7] About 87 percent of all 2-year and 4-year postsecondary education students in fall 1991 were undergraduates (U.S. Department of Education, June 1992).

In 1992-93, 2-year institutions enrolled more deaf and hard of hearing students than did 4-year institutions (table 4). Almost 9 out of 10 deaf and hard of hearing students (17,690 out of 20,040) attended public institutions. More deaf and hard of hearing students were enrolled in institutions in the West than in any one of the other regions. About half of the deaf and hard of hearing students (9,710 out of 20,040) attended large institutions. These patterns of differences by institutional characteristics have remained stable since 1989-90.

Table 4.--Number of deaf and hard of hearing students enrolled at 2-year and 4-year postsecondary education institutions during academic years 1989-90 through 1992-93, by institutional characteristics: 1993

Institutional characteristic	1989-90	1990-91	1991-92	1992-93
All institutions	17,030	18,340	19,450	20,040
Level				
2-year	11,030	11,720	12,220	12,350
4-year	6,000	6,620	7,230	7,700
Control				
Public	15,320	16,370	17,150	17,690
Private	1,710	1,970	2,300	2,360
Region				
Northeast	3,190	3,550	3,830	3,970
Southeast	3,100	3,190	3,400	3,640
Central	2,920	3,330	3,720	3,850
West	7,820	8,270	8,500	8,580
Size of institution				
Less than 3,000	3,970	4,090	4,350	4,490
3,000 to 9,999	4,930	5,360	5,570	5,850
10,000 or more	8,140	8,890	9,530	9,710

NOTE: The number of deaf and hard of hearing students presented here represents only those students who identified themselves to their institution as deaf or hard of hearing, since these were the only students about whom the institutions could report. Data for all 4 academic years were reported in 1993. Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf. The numbers of students have been rounded to the nearest 10. Numbers may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Table 5 shows the percentage distributions of all students enrolled at 2-year and 4-year postsecondary institutions and of students at these institutions who identified themselves to the institution as deaf or hard of hearing, presented by institutional characteristics. The distributions for institutional level are strikingly different. While 62 percent of students who identified themselves to the institution as deaf or hard of hearing attended 2-year institutions and 38 percent attended 4-year institutions, 62 percent of all students attended 4-year institutions and 38 percent attended 2-year institutions. Thus, a much higher proportion of students who identified themselves to the institution as deaf or hard of hearing than of all students attended 2-year institutions. This difference is supported by data from the National Postsecondary Student Aid Study (NPSAS:90), presented in table 5, which show that 57 percent of self-reported hearing impaired students attended 2-year institutions and 43 percent attended 4-year institutions (U.S. Department of Education, October 1993).

Table 5 also shows an interesting pattern for size of the institution. While about a quarter of the deaf and hard of hearing students in the PEQIS and NPSAS:90 studies attended small institutions, 12 percent of all 2-year and 4-year postsecondary students attended small institutions. Thus, deaf and hard of hearing students were more likely than all students to attend a small institution.

Provision of Support Services

Respondents were asked whether their institutions had provided support services designed for deaf and hard of hearing students to any such students in the last 4 academic years (1989-90 through 1992-93), and if so, how many such students had been served in each of the 4 academic years. Respondents were instructed to report deaf students separately from hard of hearing students if possible. If it was not possible to report deaf and hard of hearing students separately, they were asked to report these students together in a combined category.

The survey asks about the number of students to whom the institutions **provided** services, and not about the number of students who **requested** services. While information about service requests would be useful, preliminary work on the survey indicated that institutions do not keep records about service requests, but only about service delivery. Thus, it is not possible to ascertain from these data whether deaf and hard of hearing students had requested services that were not provided.

Table 5.--Percent distributions of students who identified themselves to the institution as deaf or hard of hearing (PEQIS survey), students who identified themselves as hearing impaired (NPSAS:90), and all students enrolled at 2-year and 4-year postsecondary education institutions, by institutional characteristics: 1993

Institutional characteristic	Students who identified themselves to the institution as deaf or hard of hearing (PEQIS survey)[1]	Students who identified themselves as hearing impaired (NPSAS:90)[2]	All students[3]
All institutions	100	100	100
Level			
2-year	62	57	38
4-year	38	43	62
Control			
Public	88	83	83
Private	12	17	17
Region			
Northeast	20	13	23
Southeast	18	18	21
Central	19	24	25
West	43	44	31
Size of institution			
Less than 3,000	22	[4]26	12
3,000 to 9,999	29	[4]39	33
10,000 or more	48	[4]32	55

[1]Data from the PEQIS survey are for academic year 1992-93.

[2]Data are student self-reports of hearing impairment from the U.S. Department of Education, National Center for Education Statistics, 1989-90 National Postsecondary Student Aid Study (NPSAS:90), unpublished tabulations, October 1993.

[3]Data for all students are from the U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), "Fall Enrollment, 1989" survey.

[4]Institutional size is missing for 2 percent of the students.

NOTE: Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf. Percents for each set of institutional characteristics may not sum to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Percentage of Institutions Providing Support Services

About a third of the nation's 5,000 2-year and 4-year postsecondary education institutions provided special support services designed for deaf and hard of hearing students to such students in any (one or more) of the last 4 academic years (table 6).[8] This represents about 1,850 institutions. Public institutions were much more likely to provide support services than were private institutions (70 versus 19 percent). Most medium and

Table 6.--Number and percent of all 2-year and 4-year postsecondary education institutions that provided special support services designed for deaf and hard of hearing students to any such students in academic years 1989-90 through 1992-93, and the percent of institutions with deaf or hard of hearing students that provided support services to those students, by institutional characteristics: 1993

Institutional characteristic	Number of institutions that provided support services to deaf and hard of hearing students in 1989-90 through 1992-93	Percent of all institutions that provided support services to deaf and hard of hearing students in 1989-90 through 1992-93[1]	Percent of institutions with deaf or hard of hearing students that provided support services to those students in 1989-90 through 1992-93[2]
All institutions	1,850	37	79
Level			
2-year	920	37	80
4-year	930	37	78
Control			
Public	1,260	70	89
Private	590	19	63
Region			
Northeast	440	35	76
Southeast	460	39	74
Central	470	35	77
West	480	39	89
Size of institution			
Less than 3,000	820	21	64
3,000 to 9,999	680	89	96
10,000 or more	360	96	99

[1]Percents in this column are based on the 5,000 2-year and 4-year postsecondary education institutions in the United States. These 5,000 institutions are broken out by institutional characteristics in Table 13.

[2]Percents in this column are based on the 2,350 institutions that enrolled any deaf or hard of hearing students in 1989-90 through 1992-93. These 2,350 institutions are broken out by institutional characteristics in Table 1.

NOTE: Information about deaf and hard of hearing students represents only those students who identified themselves to their institution as deaf or hard of hearing, since these were the only students about whom the institutions could report. Data for all 4 academic years were reported in 1993. Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf. The numbers of institutions have been rounded to the nearest 10. Numbers may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

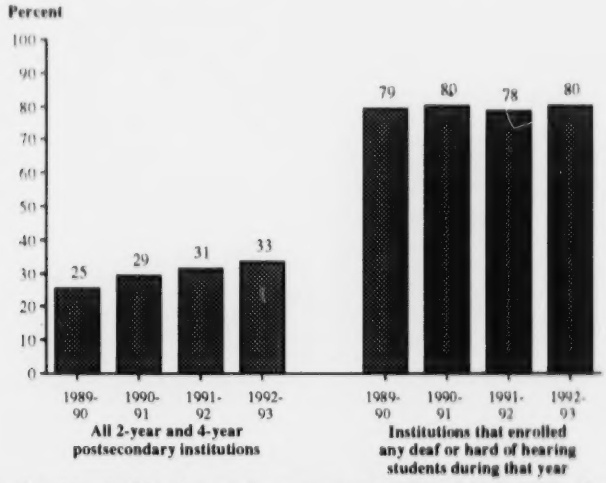
[8]An institution was considered to have provided support services if they made arrangements for these services, even if another agency paid for them. Vocational Rehabilitation is one common funding source for many of the services provided by institutions.

large institutions provided such support services (89 and 96 percent, respectively), compared with 21 percent of small institutions. The proportion of institutions providing support services designed for these students did not differ by institutional level (2-year or 4-year) or region of the country in which the institution was located. This pattern by institutional characteristics for service provision is similar to the pattern for enrollment of these students.

About three-quarters of the institutions that enrolled any students who identified themselves to the institution as deaf or hard of hearing in 1989-90 through 1992-93 reported providing support services to deaf or hard of hearing students during those years (table 6). Public institutions were more likely to provide services than were private institutions, and medium and large institutions were more likely to provide services than were small institutions. The proportion of institutions providing support services was not significantly different by institutional level or region.

A quarter of the nation's 2-year and 4-year postsecondary education institutions provided support services designed for students who are deaf or hard of hearing to such students in 1989-90 (figure 3). By 1992-93, a third of the institutions provided these support services, a significant increase from 1989-90. About four-fifths of the institutions that enrolled deaf and hard of hearing students provided support services to such students in each of the 4 academic years.

Figure 3.--Percent of 2-year and 4-year postsecondary education institutions that provided special support services designed for deaf and hard of hearing students to any such students during academic years 1989-90 through 1992-93, based on all 2-year and 4-year postsecondary institutions and on those institutions that enrolled any deaf or hard of hearing students in that academic year: 1993



NOTE: Information about deaf and hard of hearing students represents only those students who identified themselves to their institution as deaf or hard of hearing, since these were the only students about whom the institutions could report. Data for all 4 academic years were reported in 1993. Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Number of Students Served

In 1992-93, 2-year and 4-year postsecondary education institutions provided special support services designed for deaf and hard of hearing students to 16,100 students (table 7), an increase of approximately 3,000 students served since 1989-90. In 1992-93, support services were provided to 4,120 deaf students, 5,270 hard of hearing students, and 6,720 students whom the institutions did not distinguish as deaf or hard of hearing. An average of 9.8 deaf and hard of hearing students received support services at each institution that provided such services in 1992-93 (not shown in tables).

Table 7.--Number of students who have been provided with any special support services designed for deaf and hard of hearing students by 2-year and 4-year postsecondary education institutions during academic years 1989-90 through 1992-93, by hearing category: 1993

Hearing category	1989-90	1990-91	1991-92	1992-93
Total	13,190	14,060	15,210	16,100
Deaf	3,170	3,350	3,850	4,120
Hard of hearing	3,470	3,930	4,800	5,270
Did not distinguish between deaf and hard of hearing	6,550	6,780	6,560	6,720

NOTE: Information about deaf and hard of hearing students represents only those students who identified themselves to their institution as deaf or hard of hearing, since these were the only students about whom the institutions could report. Data for all 4 academic years were reported in 1993. Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf. The numbers of students have been rounded to the nearest 10. Numbers may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

In 1992-93, 2-year institutions and public institutions provided support services to more deaf and hard of hearing students than did 4-year institutions and private institutions (table 8). Institutions in the West provided support services to more deaf and hard of hearing students than did institutions in any one of the other regions of the country. About half of the deaf and hard of hearing students that received support services (8,000 out of 16,100) attended large institutions. These patterns of differences by institutional characteristics have remained stable since 1989-90.

Table 8.--Number of students who have been provided with any special support services designed for deaf and hard of hearing students by 2-year and 4-year postsecondary education institutions during academic years 1989-90 through 1992-93, by institutional characteristics: 1993

Institutional characteristic	1989-90	1990-91	1991-92	1992-93
All institutions	13,190	14,060	15,210	16,100
Level				
2-year	8,580	8,970	9,540	9,970
4-year	4,610	5,090	5,660	6,130
Control				
Public	11,930	12,580	13,500	14,330
Private	1,250	1,470	1,710	1,770
Region				
Northeast	2,490	2,780	2,920	3,240
Southeast	2,270	2,260	2,740	3,000
Central	1,950	2,310	2,640	2,770
West	6,480	6,700	6,910	7,100
Size of institution				
Less than 3,000	2,870	2,900	3,250	3,580
3,000 to 9,999	3,820	4,140	4,320	4,520
10,000 or more	6,500	7,010	7,640	8,000

NOTE: Information about deaf and hard of hearing students represents only those students who identified themselves to their institution as deaf or hard of hearing, since these were the only students about whom the institutions could report. Data for all 4 academic years were reported in 1993. Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf. The numbers of students have been rounded to the nearest 10. Numbers may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Percentage of Students Served

Eighty percent of the students who identified themselves to the institution as deaf or hard of hearing received special support services designed for such students in 1992-93 (table 9).[9] Most students reported as deaf (93 percent) received support services; 71 percent of students reported as hard of hearing and 88 percent of students whom the institutions did not distinguish as deaf or hard of hearing received support services. As reported by the institutions, the percentages of students receiving support services have remained fairly stable since 1989-90, and do not vary by institutional characteristics.

Table 9.--Percent of deaf and hard of hearing students that were provided with special support services designed for such students during academic years 1989-90 through 1992-93, by hearing category: 1993

Hearing category	1989-90	1990-91	1991-92	1992-93
Total	77	77	78	80
Deaf	91	92	94	93
Hard of hearing	63	63	68	71
Did not distinguish between deaf and hard of hearing	89	88	87	88

NOTE: The percent of deaf and hard of hearing students served is based only on those students who identified themselves to their institution as deaf or hard of hearing, since these were the only students about whom the institutions could report. Data for all 4 academic years were reported in 1993. Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

[9] Information about requests for services, in contrast to that about the provision of services, is not available. Thus, it is not possible to ascertain from these data whether the 20 percent of deaf and hard of hearing students who did not receive support services had requested that any services be provided.

Types of Support Services Provided

Respondents were asked about the provision of a number of specific support services designed for deaf and hard of hearing students to such students in the last 4 academic years (1989-90 through 1992-93). The specific support services about which institutions were asked were *sign language interpreters/transliterators*, who use manual communication for voice to sign and sign to voice interpretation; *oral interpreters/ transliterators*, who facilitate lipreading by silently repeating what is being said, often with facial and/or gestural enhancements and semantic rewording of words or phrases that are difficult to lipread; *classroom notetakers*, who take notes for deaf and hard of hearing students during class sessions, so that these students can focus their attention on the instructor and/or interpreter; *tutors to assist with ongoing coursework*, who know the subject area, how to teach it, and how to communicate with deaf and hard of hearing students to provide additional assistance with coursework; and *assistive listening devices*, which are systems for the classroom or lecture hall that augment and clarify sound, such as personal and group FM systems, loop systems, and infrared systems. Respondents were also given an opportunity to list any other support services that the institution provided to deaf and hard of hearing students.

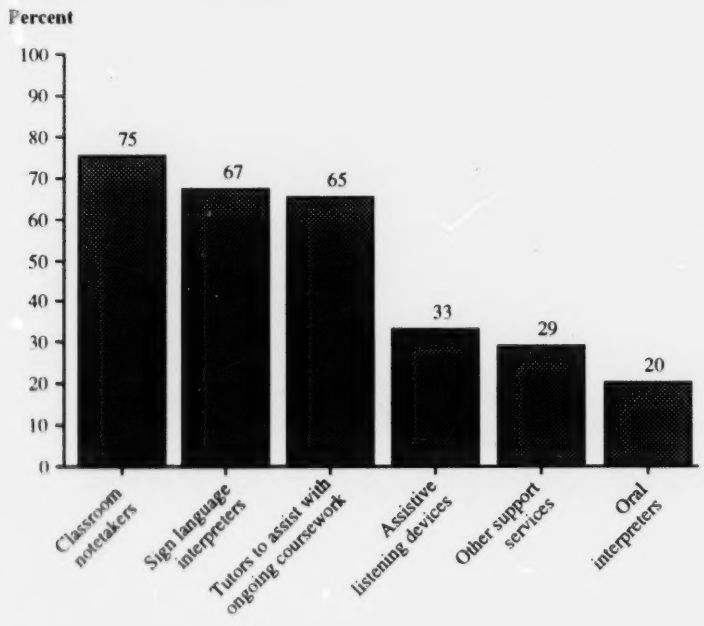
Students who are deaf or hard of hearing and need support services, usually need individualized support services. For example, some students may need interpreters, whereas others may hear or read lips well enough to need classroom notetakers rather than interpreters; other students may require both services. Ideally, what an institution provides is based on what the individual deaf or hard of hearing student needs. Since information about student requests for services is not available from the institutions, it is not possible to ascertain from these data whether the services provided were the only services requested.

It also is not possible from these data to ascertain the quality of the support services that were provided. For example, it would be useful to know whether the interpreters were certified, the assistive listening devices were in good condition, and the tutors were familiar with the coursework that they were tutoring. However, the constraints of a brief PEQIS survey did not allow this kind of detailed information to be collected. Thus, while this survey provides the previously unknown information about the number of deaf and hard of hearing students to whom various support services were provided, it does not provide information about the quality of these services.

Percentage of Institutions Providing Specific Support Services

Three-quarters of the institutions that provided any support services to deaf and hard of hearing students in the last 4 academic years provided classroom notetakers to these students (figure 4). About two-thirds of these institutions provided sign language interpreters and tutors to assist with ongoing coursework. Assistive listening devices were provided by a third of the institutions that had provided any support services. Oral interpreters were provided by 20 percent of the institutions. About a quarter (29 percent) of the institutions that had provided any support services indicated that they provided some other type of support service. Other services frequently mentioned were testing accommodations (such as extended time or individual sessions), counseling or advising (personal, academic, vocational, or career), assistance with registration, classroom seating arrangements, tape recording of class sessions, and advocacy or consultation with instructors.

Figure 4.--Percent of 2-year and 4-year postsecondary education institutions that provided specific support services to deaf and hard of hearing students in 1989-90 through 1992-93, based on those institutions that provided any support services to deaf and hard of hearing students during those years: 1993



NOTE: Percents are based on the 1,850 institutions that provided any support services designed for deaf and hard of hearing students to one or more such students in 1989-90 through 1992-93. Information about deaf and hard of hearing students represents only those students who identified themselves to their institution as deaf or hard of hearing, since these were the only students about whom the institutions could report. Other support services frequently mentioned were testing accommodations, counseling or advising, assistance with registration, classroom seating arrangements, tape recording of class sessions, and advocacy or consultation with instructors. Data for all 4 academic years were reported in 1993. Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Number and Percentage of Students Provided with Specific Support Services

During academic year 1992-93, 2-year and 4-year postsecondary education institutions reported providing classroom notetakers to 8,700 deaf and hard of hearing students (table 10). Sign language interpreters were also frequently provided, with 8,100 deaf and hard of hearing students receiving this service in 1992-93. Institutions reported providing 5,320 deaf and hard of hearing students with tutors to assist with ongoing coursework, 1,070 students with assistive listening devices, and 970 students with oral interpreters. Other support services of some kind were provided to 3,700 deaf and hard of hearing students in 1992-93.

Table 10.--Number of students who have been provided with any special support services designed for deaf and hard of hearing students, and the number of students to whom each type of support service has been provided by 2-year and 4-year postsecondary education institutions during academic years 1989-90 through 1992-93: 1993

Support service	1989-90	1990-91	1991-92	1992-93
Provided with any support service	13,190	14,060	15,210	16,100
Type of support service provided				
Sign language interpreters/transliterators	7,430	7,440	7,970	8,100
Oral interpreters/transliterators	750	790	800	970
Classroom notetakers	6,930	7,490	8,390	8,700
Tutors to assist with ongoing coursework	4,090	4,310	4,760	5,320
Assistive listening devices	610	820	990	1,070
Other support services	2,510	2,800	3,200	3,700

NOTE: The numbers of students provided with specific services are duplicated counts. If a student was provided with multiple services, the student is counted for each service provided. Thus, the numbers of students provided with various types of support services sum to more than the number provided with any support service. Other support services frequently mentioned were testing accommodations, counseling or advising, assistance with registration, classroom seating arrangements, tape recording of class sessions, and advocacy or consultation with instructors. Data for all 4 academic years were reported in 1993. Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf. The numbers of students have been rounded to the nearest 10.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Table 11 shows the proportion of deaf and hard of hearing students provided with any support services in 1992-93 that were provided with specific support services. There were not many statistically significant differences by institutional characteristics, due in part to the large standard errors for some items (see table 11a in appendix A). Sign language interpreters were provided to larger proportions of students who received support services in small and large institutions than in medium institutions. Tutors were provided to greater proportions of students who received support services in institutions in the Central states than in institutions in the West or Northeast. Assistive listening devices were provided to a higher percentage of students who received support services in 4-year than in 2-year institutions, and in large compared with small institutions. There were no other statistically significant differences by institutional characteristics.

Table 11.--Number of students who have been provided with any special support services designed for deaf and hard of hearing students by 2-year and 4-year postsecondary education institutions during academic year 1992-93, and the percent of those students provided with each type of support service, by institutional characteristics: 1993

Institutional characteristic	Number provided with any support service	Percent provided with specific services*					
		Sign language interpreters	Oral interpreters	Classroom notetakers	Tutors to assist with ongoing coursework	Assistive listening devices	Other support services
All institutions	16,100	50	6	54	33	7	23
Level							
2-year	9,970	54	7	49	36	5	26
4-year	6,130	44	4	62	29	9	19
Control							
Public	14,330	49	6	52	35	7	25
Private	1,770	61	5	67	21	7	13
Region							
Northeast	3,240	51	2	58	28	5	20
Southeast	3,000	45	5	53	38	8	32
Central	2,770	44	3	60	45	7	20
West	7,100	54	10	50	29	7	22
Size of institution							
Less than 3,000	3,580	61	4	47	41	3	18
3,000 to 9,999	4,520	34	13	52	35	8	25
10,000 or more	8,000	55	3	58	28	7	25

*Percents provided with specific services are based on the number provided with any support service, given in the left-hand column of this table.

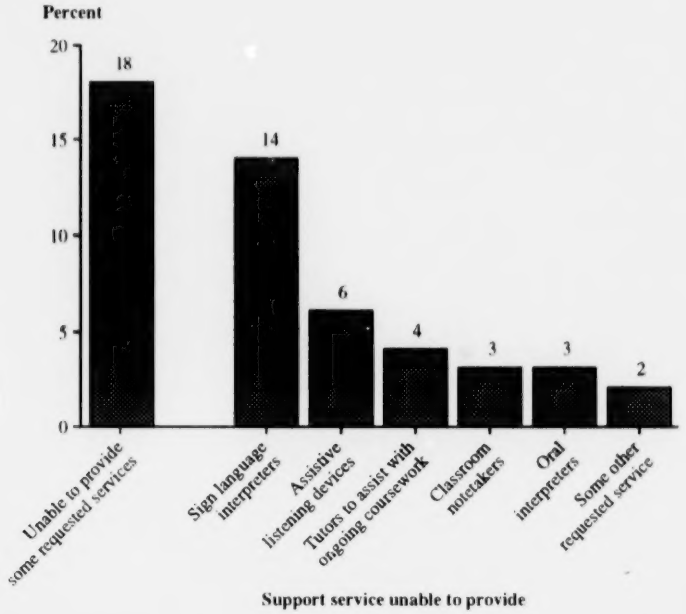
NOTE: Percents sum to more than 100 because a student who was provided with multiple services is counted for each service provided. Other support services frequently mentioned were testing accommodations, counseling or advising, assistance with registration, classroom seating arrangements, tape recording of class sessions, and advocacy or consultation with instructors. Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf. The numbers of students have been rounded to the nearest 10. Numbers may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Problems with Providing Support Services

Respondents at institutions that had enrolled any deaf or hard of hearing students in the last 4 academic years (1989-90 through 1992-93) were asked whether, during that time, their institution had been asked to provide any support services to deaf and hard of hearing students that the institution was unable to provide, either at all or at the level requested. About one in five (18 percent) of the institutions that had enrolled any deaf or hard of hearing students in the last 4 academic years had been unable to provide one or more requested support services to deaf and hard of hearing students (figure 5). Fourteen percent of the institutions that had enrolled any deaf or hard of hearing students in the last 4 academic years had been unable to provide sign language interpreters; 6 percent had been unable to provide assistive listening devices; 4 percent had problems providing tutors to assist with ongoing coursework; 3 percent had been unable to provide classroom notetakers; 3 percent had problems providing oral interpreters; and 2 percent had been unable to provide some other requested service. Reasons cited frequently for being unable to provide sign language and oral interpreters were that there

Figure 5.--Percent of 2-year and 4-year postsecondary education institutions that enrolled any deaf or hard of hearing students in 1989-90 through 1992-93 that had been unable to provide some requested support service to deaf or hard of hearing students, either at all or at the level requested, and the percent that had been unable to provide each support service: 1993



NOTE: Percents are based on the 2,350 institutions that enrolled any deaf or hard of hearing students in 1989-90 through 1992-93. Information about deaf and hard of hearing students represents only those students who identified themselves to their institution as deaf or hard of hearing, since these were the only students about whom the institutions could report. Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

were not enough qualified personnel and that qualified personnel take better jobs outside the institution.[10] Frequently cited reasons for being unable to provide assistive listening devices were that the necessary equipment was not available and that money to provide the service was not available. A commonly mentioned reason for problems providing classroom notetakers, tutors, and other support services was that the money to provide the service was not available.

Primary Contact Point for Provision of Support Services

The Office of Special Education and Rehabilitative Services (OSERS), which requested this survey, was interested in obtaining information about the types of student service personnel who have responsibility for coordinating disability support services. OSERS wanted to know what person or office on campus would be the primary point of contact for deaf and hard of hearing students when such students requested support services. This information is useful to OSERS (and others) in targeting the dissemination of information to institutions about service provision for disabled students. The primary point of contact on campus for the provision of support services to deaf and hard of hearing students was the following:

- A person or office on campus that provides services to students with disabilities when the need arises (44 percent);
- A person or office on campus that is responsible (on an ongoing basis) for services to students with disabilities, in addition to other duties (41 percent);
- An office devoted entirely to services for students with disabilities (11 percent);
- A coordinator devoted entirely to services for students with disabilities, but located within another office (3 percent); and
- Some other primary point of contact (1 percent).

Size of the institution was strongly related to the primary point of contact for the provision of support services. As institutional size increased, the likelihood of having an office devoted entirely to services for students with disabilities increased (table 12). While only 3 percent of small institutions had an office devoted entirely to services for students with disabilities, 26 percent of medium institutions and 68 percent of large institutions had such an office. At smaller institutions, it was much more likely that a person or office on campus provided these services when the need arose; 55 percent of small institutions used this primary point of contact, compared with 10 percent of medium institutions and 1 percent of large institutions. About half (52 percent) of medium institutions had a person or office on campus responsible for services to students with disabilities, in addition to their other duties, compared with 40 percent of small institutions and 23 percent of large institutions.

[10]The percentage of institutions citing each reason for problems providing specific services is not given, because there were too few cases for such analyses.

Table 12.--Percent of 2-year and 4-year postsecondary education institutions indicating various primary points of contact for the provision of support services to deaf and hard of hearing students, by institutional characteristics: 1993

Institutional characteristic	Office devoted entirely to services for students with disabilities	Coordinator devoted entirely to services for students with disabilities, but located within another office	Person or office on campus responsible for services to students with disabilities, in addition to other duties	Person or office on campus provides these services when the need arises	Other primary point of contact
All institutions	11	3	41	44	1
Level					
2-year	13	3	41	42	1
4-year	9	4	40	45	1
Control					
Public	29	7	48	15	1
Private	2	1	36	60	1
Region					
Northeast	7	5	50	38	(+)
Southeast	9	4	42	44	1
Central	10	3	40	46	1
West	19	2	30	47	2
Size of institution					
Less than 3,000	3	1	40	55	1
3,000 to 9,999	26	11	52	10	(+)
10,000 or more	68	9	23	1	0

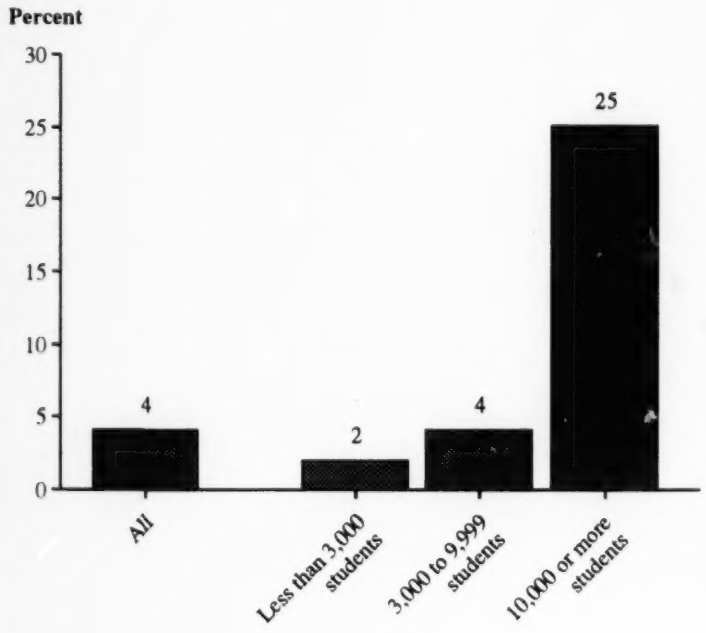
(+) Less than 0.5 percent.

NOTE: Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf. Percents are computed across each row, but may not sum to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Only 4 percent of 2-year and 4-year postsecondary education institutions had an office or coordinator devoted entirely to services for deaf and hard of hearing students (figure 6). Institutional size was strongly related to the presence of an office or coordinator devoted entirely to services for deaf and hard of hearing students; only 2 percent and 4 percent, respectively, of the small and medium institutions had such an office or coordinator, compared with 25 percent of the large institutions. Large institutions are most likely to need such a coordinator, since they are more likely to have deaf and hard of hearing students continuously enrolled -- 94 percent of large institutions enrolled students who identified themselves as deaf or hard of hearing in all of the last 4 academic years, compared with 68 percent of medium and 13 percent of small institutions (see table 1).

Figure 6.--Percent of 2-year and 4-year postsecondary education institutions that had an office or coordinator devoted entirely to services for deaf and hard of hearing students, by size of the institution: 1993



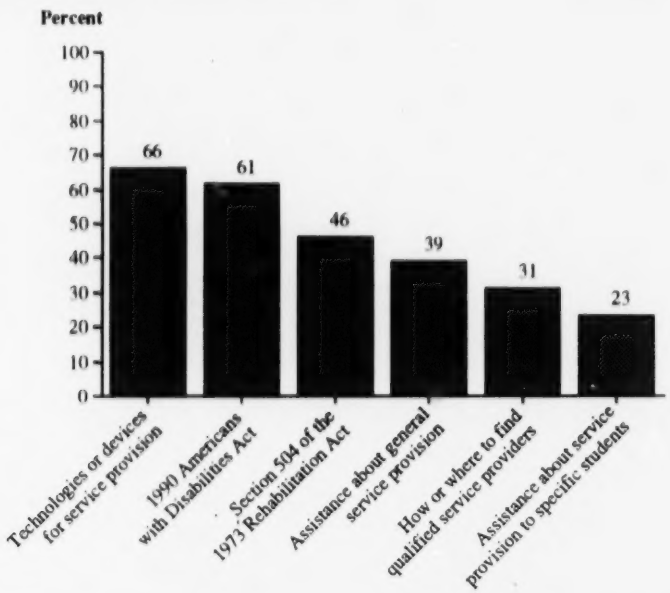
NOTE: Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Information Useful to Institutions in Regard to Providing Services

OSERS was interested in knowing what kinds of information would be most useful to institutions in regard to providing support services to deaf and hard of hearing students. For planning purposes, OSERS was interested in knowing whether institutions needed more information about applicable federal legislation, information about resources for service provision (such as service providers and technologies), or technical assistance in providing services. In response to OSERS' interest in this information, respondents at all institutions were asked to select from a list up to three kinds of information that would be most useful to their institution in regard to providing services to deaf and hard of hearing students. Information about what kinds of technologies or devices are available for postsecondary institutions to use in providing services to deaf and hard of hearing students was selected by respondents at 66 percent of institutions (figure 7). Information about federal legislation also was selected frequently, with respondents at 61 percent of institutions interested in information about what is required of postsecondary institutions under the 1990 Americans with Disabilities Act, and 46 percent interested in information about what is required of postsecondary institutions under Section 504 of the Rehabilitation Act of 1973. Respondents at 39 percent of the institutions would like assistance

Figure 7.--Percent of 2-year and 4-year postsecondary education institutions indicating which kinds of information would be most useful to the institution in regard to providing services to deaf and hard of hearing students: 1993



NOTE: Percents sum to more than 100 because respondents could select up to three kinds of information that would be most useful to the institution. Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

in deciding how best to provide services to deaf or hard of hearing students generally; 31 percent were interested in information on how or where to find qualified persons to provide special services such as sign language or oral interpreting; and 23 percent would like assistance in deciding how best to provide services to specific deaf or hard of hearing students.

Information Delivery Mechanisms

OSERS was interested in knowing how information about providing services to disabled students might most effectively be disseminated to institutions. In response to OSERS' interest in this information, respondents at all institutions were asked to rank four information delivery mechanisms in the order in which they would be most likely to use them to obtain information about providing services to deaf and hard of hearing students. Respondents indicated that they were most likely to use a newsletter to obtain this information; 45 percent ranked a newsletter as most likely and only 9 percent ranked it as least likely (figure 8). An electronic bulletin board was least likely to be used, with only 6 percent of respondents ranking this delivery mechanism as most likely and 71 percent ranking it as least likely to be used. Resource/technical assistance centers and information clearinghouses[11] were moderately likely to be used, with about a quarter of respondents ranking each of these delivery mechanisms as most likely to be used.

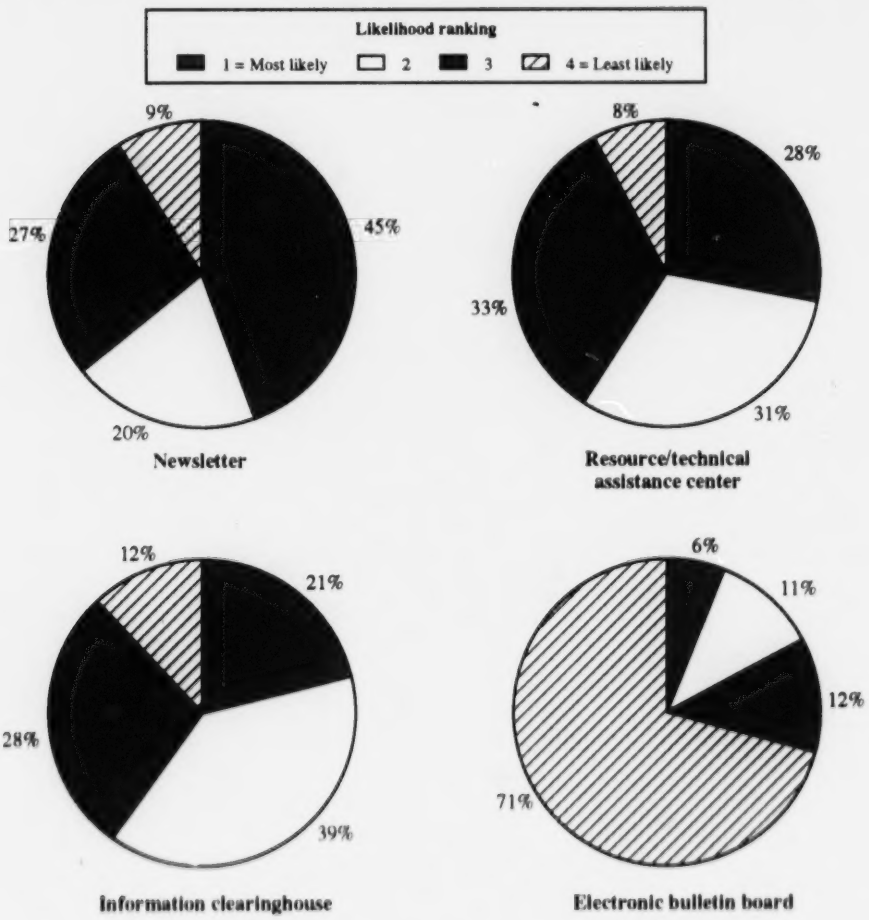
Summary

In 1992-93, an estimated 20,040 students who identified themselves to the institution as deaf or hard of hearing were enrolled in 2-year and 4-year postsecondary education institutions. Institutions reported 4,520 deaf students, 7,770 hard of hearing students, and 7,750 students in the combined deaf or hard of hearing (i.e., the institution did not distinguish between deaf and hard of hearing) category. Deaf and hard of hearing students were fairly widely distributed across institutions, with 47 percent of the nation's 5,000 2-year and 4-year postsecondary education institutions (about 2,350 institutions) enrolling one or more such students in at least 1 of the last 4 academic years (1989-90 through 1992-93).

Institutions reported providing special support services designed for deaf and hard of hearing students to 16,100 deaf and hard of hearing students in 1992-93. About a third of the nation's 5,000 2-year and 4-year postsecondary education institutions (about 1,850 institutions, or three-quarters of the 2,350 institutions that enrolled deaf and hard of hearing students) provided support services designed for deaf and hard of hearing students to such students in the last 4 academic years. Classroom notetakers were a frequently provided support service, as were sign language interpreters and tutors to assist with ongoing coursework. Institutions were generally able to provide the support services requested of them, with only 18 percent of the institutions that had enrolled any deaf or hard of hearing students indicating that they had been unable to

[11] A resource/technical assistance center is an information resource that provides consultation, technical assistance, and related services in response to specific inquiries; responses and services are usually tailored to the individual request. An information clearinghouse is an information resource that provides general information and referral services on identified topics.

Figure 8.--Percent of 2-year and 4-year postsecondary education institutions giving each rank from 1 (most likely) to 4 (least likely) for the likelihood of using each information source to obtain information about providing services to deaf and hard of hearing students: 1993



NOTE: Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf. Percents may not sum to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

provide some requested support service to deaf or hard of hearing students, either at all or at the level requested.

The primary point of contact on campus for the provision of support services to deaf and hard of hearing students was frequently a person or office on campus that provides services to students with disabilities when the need arises (44 percent), or a person or office on campus that is responsible (on an ongoing basis) for services to students with disabilities, in addition to other duties (41 percent). Only 3 percent of institutions had an office or coordinator devoted entirely to services for deaf and hard of hearing students. Institutions were interested in information about what kinds of technologies or devices are available for postsecondary institutions to use in providing services to deaf and hard of hearing students, and about applicable federal legislation. Institutions were most likely to use a newsletter and least likely to use an electronic bulletin board to obtain information about providing services to deaf and hard of hearing students.

Survey Methodology and Data Reliability

Postsecondary Education Quick Information System

The Postsecondary Education Quick Information System (PEQIS) was established in 1991 by the National Center for Education Statistics, U.S. Department of Education. PEQIS is designed to conduct brief surveys of postsecondary institutions or state higher education agencies on postsecondary education topics of national importance. Surveys are generally limited to two to three pages of questions, with a response burden of about 30 minutes per respondent. Most PEQIS institutional surveys use a previously recruited nationally representative panel of institutions. The sampling frame for the PEQIS panel recruited in 1992 was constructed from the 1990-91 Integrated Postsecondary Education Data System (IPEDS) Institutional Characteristics file. Institutions eligible for the PEQIS frame for the panel recruited in 1992 included 2-year and 4-year (including graduate-level) institutions (both institutions of higher education and other postsecondary institutions), and less-than-2-year institutions of higher education located in the 50 states, the District of Columbia, and Puerto Rico: a total of 5,317 institutions.

The PEQIS sampling frame for the panel recruited in 1992 was stratified by instructional level (4-year, 2-year, less-than-2-year), control (public, private nonprofit, private for-profit), highest level of offering (doctor's/first professional, master's, bachelor's, less than bachelor's), total enrollment, and status as either an institution of higher education or other postsecondary institution. Within each of the strata, institutions were sorted by region (Northeast, Southeast, Central, West), whether the institution had a relatively high minority enrollment, and whether the institution had research expenditures exceeding $1 million. The sample of 1,665 institutions was allocated to the strata in proportion to the aggregate square root of full-time-equivalent enrollment. Institutions within a stratum were sampled with equal probabilities of selection. During panel recruitment, 50 institutions were found to be ineligible for PEQIS, primarily because they had closed or offered just correspondence courses. The final unweighted response rate at the end of PEQIS panel recruitment in spring 1992 was 98 percent (1,576 of the 1,615 eligible institutions). The weighted response rate for panel recruitment was 96 percent.

Each institution in the PEQIS panel was asked to identify a campus representative to serve as survey coordinator. The campus representative facilitates data collection by identifying the appropriate respondent for each survey and forwarding the questionnaire to that person.

Sample and Response Rates

The sample for this survey consisted of two-thirds of the 2-year and 4-year (including graduate-level) postsecondary education institutions in the PEQIS panel, for a sample of 1,036 institutions. In early March 1993, questionnaires (see appendix B) were mailed to the PEQIS coordinators at the institutions. Coordinators were told that the survey was designed to be completed by the person or office at the institution that has the most information about deaf and hard of hearing students. Eleven institutions were found to be out of the scope of the survey (primarily because they were closed), leaving 1,025 eligible institutions. These 1,025 institutions represent the universe of approximately 5,000 2-year and 4-year (including graduate-level) postsecondary education institutions in the United States. Telephone followup of nonrespondents was initiated in late March; data collection was completed in mid-May. For the eligible institutions that received surveys, an unweighted response rate of 96 percent (982 responding institutions divided by the 1,025 eligible institutions in the sample) was obtained. The weighted response rate for this survey was 97 percent. The unweighted overall response rate was 94 percent (98 percent panel recruitment participation rate multiplied by the 96 percent survey response rate). The weighted overall response rate was 94 percent (96.1 percent weighted panel recruitment participation rate multiplied by the 97.4 percent weighted survey response rate).

Weighted item nonresponse rates ranged from 0 percent to 3.9 percent. The items with the highest nonresponse rates involved the information for academic year 1989-90 for the first three questions, which requested information about the numbers of students enrolled who identified themselves to the institution as deaf or hard of hearing, and the numbers of deaf and hard of hearing students served at the institution during each of the last 4 academic years. Because one of the major reasons for conducting this survey was to make national estimates of these numbers, imputations for item nonresponse were made for questions 1b, 2b, and 3, which each requested information for academic years 1989-90, 1990-91, 1991-92, and 1992-93. The imputation procedures involved a combination of hot-deck imputation for institutions missing data for all 4 years (1989-90 through 1992-93), and application of subsequent years' data to previous years, adjusted by the average rate of change of similar institutions (based on sampling strata) for institutions that provided data for one or more of the 4 years. Hot-deck imputation selects a donor value from another institution with similar characteristics to use as the imputed value. Thus, the institutions were sorted by strata and within strata by total institution size before beginning imputation. No institution was used as a donor more than once.

Sampling and Nonsampling Errors

The response data were weighted to produce national estimates (see table 13). The weights were designed to adjust for the variable probabilities of selection and differential nonresponse. The findings in this report are estimates based on the sample selected and, consequently, are subject to sampling variability.

Table 13.--Number and percent of 2-year and 4-year postsecondary education institutions in the study sample that responded, and the estimated number and percent in the nation, by institutional characteristics: 1993

Institutional characteristic	Respondent sample		National estimate*	
	Number	Percent	Number	Percent
All institutions	982	100	5,000	100
Level				
2-year	428	44	2,510	50
4-year	554	56	2,500	50
Control				
Public	522	53	1,800	36
Private	460	47	3,200	64
Region				
Northeast	241	25	1,250	25
Southeast	226	23	1,190	24
Central	250	25	1,330	27
West	265	27	1,230	25
Size of institution				
Less than 3,000	519	53	3,860	77
3,000 to 9,999	233	24	770	15
10,000 or more	230	23	370	7

*Data presented in all tables are weighted to produce national estimates. The sample was selected with probabilities proportionate to the square root of full-time equivalent enrollment. Institutions with larger full-time-equivalent enrollments have higher probabilities of inclusion and lower weights. The weighted numbers of institutions have been rounded to the nearest 10.

NOTE: Data are for the 50 states, the District of Columbia, and Puerto Rico, and do not include Gallaudet University and the National Technical Institute for the Deaf. Percents may not sum to 100 and numbers may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

The survey estimates are also subject to nonsampling errors that can arise because of nonobservation (nonresponse or noncoverage) errors, errors of reporting, and errors made in collection of the data. These errors can sometimes bias the data. Nonsampling errors may include such problems as misrecording of responses; incorrect editing, coding, and data entry; differences related to the particular time the survey was conducted; or errors in data preparation. While general sampling theory can be used in part to determine how to estimate the sampling variability of a statistic, nonsampling errors are not easy to measure and, for measurement purposes, usually require that an experiment be conducted as part of the data collection procedures or that data external to the study be used.

To minimize the potential for nonsampling errors, the questionnaire was pretested with respondents at institutions like those who completed the survey. During the design of the survey and the survey pretest, an effort was made to check for consistency of interpretation of questions and to eliminate ambiguous items. The questionnaire and instructions were extensively reviewed by the National Center for Education Statistics and the Office of Special Education and Rehabilitative Services (OSERS). Manual and machine editing of the questionnaire responses were conducted to check the data for accuracy and consistency. Cases with missing or inconsistent items were recontacted by telephone. Data were keyed with 100 percent verification.

Variances

The standard error is a measure of the variability of estimates due to sampling. It indicates the variability of a sample estimate that would be obtained from all possible samples of a given design and size. Standard errors are used as a measure of the precision expected from a particular sample. If all possible samples were surveyed under similar conditions, intervals of 1.96 standard errors below to 1.96 standard errors above a particular statistic would include the true population parameter being estimated in about 95 percent of the samples. This is a 95 percent confidence interval. For example, the estimated percentage of institutions reporting that the institution provided support services to deaf or hard of hearing students in 1989-90 through 1992-93 is 37 percent, and the estimated standard error is 1.5 percent. The 95 percent confidence interval for the statistic extends from [37 - (1.5 times 1.96)] to [37 + (1.5 times 1.96)], or from 34.1 to 39.9 percent. Tables of standard errors for each table in the report are provided in appendix A.

Estimates of standard errors were computed using a technique known as jackknife replication. As with any replication method, jackknife replication involves constructing a number of subsamples (replicates) from the full sample and computing the statistic of interest for each replicate. The mean square error of the replicate estimates around the full sample estimate provides an estimate of the variances of the statistic (Wolter 1985, Chapter 4). To construct the replications, 52 stratified subsamples of the full sample were created and then dropped one at a time to define 52 jackknife replicates (Wolter 1985, 183). A computer program (WESVAR), available at Westat, Inc., was used to calculate the estimates of standard errors. The software runs under IBM/OS and VAX/VMS systems.

The test statistics used in the analysis were calculated using the jackknife variances and thus appropriately reflected the complex nature of the sample design. In particular, an adjusted chi-square test using Satterthwaite's approximation to the design effect was used in the analysis of the two-way tables (e.g., see Rao and Scott 1984). Finally, Bonferroni adjustments were made to control for multiple comparisons where appropriate. For example, for an "experiment-wise" comparison involving g pairwise comparisons, each difference was tested at the 0.05/g significance level to control for the fact that g differences were simultaneously tested.

Questionnaire Development

When OSERS requested this PEQIS survey, they began with a long list of the types of information that they would like to obtain. Included on this list were information about deaf and hard of hearing students by hearing level, academic level, full-time/part-time status, and race/ethnicity; a question about whether the respondent was aware of any deaf and hard of hearing students enrolled at the institution who did not identify themselves to the institution, and if so, how many, and how the respondent became aware of these students; certificates and degrees awarded to deaf and hard of hearing students; and the availability, requests for, and provision of a long list of support services.

In the early stages of questionnaire development, it became clear that the question about the availability and provision of the support services to deaf and hard of hearing students was problematic for a couple of reasons. First, some of the services (e.g., personal counseling services, employment placement services) are available to all students on campus, not just to deaf and hard of hearing students. Second, if an institution only rarely enrolls a deaf or hard of hearing student, needed services are located and provided on an as-needed basis -- which is different than the concept of a service being "available" at an institution, since this implies that the service delivery mechanism is already in place. Because of these issues, the question was changed to ask about the provision of a small number of support services designed for deaf and hard of hearing students (and not about availability and requests for services).

The questionnaire was then sent to representatives at institutions in the PEQIS panel for feedback about the availability of the requested data. All respondents stressed that they only have information about students with disabilities who have voluntarily chosen to identify themselves to the institution as having a disability. Thus, none of the institutions could respond to the questions about deaf and hard of hearing students who did not identify themselves to the institution. Information about certificates and degrees awarded, full-time/part-time status, and race/ethnicity could be provided by many of the institutions, but the time required to do so far exceeded the 30-minute PEQIS response burden. The major reason was that student records would have to be searched (by computer or manually, depending on the school) to locate and compile this information. Based on the feedback received from this review by institutions, the questionnaire was revised, an NCES questionnaire review meeting held, and a pretest conducted with institutions in the PEQIS sample. Only minor changes, mostly in the questionnaire format,

were needed after the pretest. The final questionnaire is provided in appendix B.

Comparison with Other Estimates of Hearing Impaired Students

The number of students who identified themselves to the institution as deaf or hard of hearing as estimated by this PEQIS survey (20,040 in 1992-93) is much lower than the number of students who reported that they had a hearing impairment in a recent student self-report survey. The 1989-90 National Postsecondary Student Aid Study (NPSAS:90) asked almost 70,000 students enrolled in all kinds and levels of postsecondary education to indicate if they had a hearing impairment or any of several other kinds of disabilities. The data were then weighted to provide national estimates. Based on these self-reports, NPSAS:90 estimated that there were 258,197 hearing impaired students enrolled in 2-year and 4-year postsecondary education institutions in 1989-90 (U.S. Department of Education, October 1993). The difference in the numbers of students with hearing impairments in the NPSAS:90 self-report data and the number of deaf and hard of hearing students in the PEQIS institutional level data indicates that there may be many students with some degree of hearing impairment who do not identify themselves to the institution as deaf or hard of hearing.[12] Based on these numbers, it appears that only about 8 percent of the students who report that they have a hearing impairment identify themselves to the institution as deaf or hard of hearing.

However, studies of hearing impaired students at the elementary and secondary levels yielded numbers much closer to the PEQIS numbers than to the NPSAS numbers. For example, the Office of Special Education and Rehabilitative Services of the U.S. Department of Education submits an annual report to Congress, as required by the Individuals with Disabilities Education Act (IDEA), about the numbers of children and youth with disabilities receiving special education and related services under IDEA and through Chapter 1 of the Elementary and Secondary Education Act (ESEA). Data about the numbers of children and youth receiving these services are collected by the U.S. Department of Education from the states. For the 1989-90 school year, reports indicated that 41,003 hearing impaired and 813 deaf-blind students were served under IDEA, and 17,161 hearing impaired and 821 deaf-blind students were served under ESEA (U.S. Department of Education 1991). Another source of information at the elementary and secondary level is the annual survey conducted by the Center for Assessment and Demographic Studies at Gallaudet University. This study, referred to as the CADS survey, collects data from schools, with teachers and administrators asked to identify children with hearing impairments. In 1989-90, the CADS survey identified 46,666 children and youth as hearing impaired (Schildroth and Hotto 1991).

A study conducted by Gallaudet College (now University) in the early 1980s also produced estimates of the number of hearing impaired students in colleges that are much closer to the estimates in the PEQIS

[12] NPSAS:87, which asked separately about deafness and hard of hearing, estimated about the same number of deaf and hard of hearing students as the NPSAS:90 estimated for hearing impaired students, indicating that the wording of the questions does not account for the very large differences in the estimates between NPSAS and PEQIS.

survey than to those in the NPSAS studies. The Gallaudet study, which contacted institutions for information, estimated that there were 10,400 hearing impaired students enrolled in American higher education institutions in 1978, including Gallaudet College and the National Technical Institute for the Deaf (NTID), which together enrolled about 2,000 students (Armstrong and Schneidmiller 1983). As discussed by the authors of the Gallaudet study, the National Center for Education Statistics, based on information collected from institutions, estimated that there were 11,256 "acoustically impaired" students attending U.S. colleges and universities in 1978, excluding Gallaudet and NTID.

There are many differences in methodologies and populations of interest in these various studies. In particular, the NPSAS numbers were student self-reports, while the other sources of data were obtained from institutions and states. Since the PEQIS study was designed to obtain estimates from institutions about students who had identified themselves to the institution as deaf or hard of hearing and about the services the institutions provided to these students, and was not designed as a comparative study, the reasons for the differences in the estimates from these various sources cannot be answered with the available data.

Background Information

The survey was performed under contract with Westat, Inc., using the Postsecondary Education Quick Information System (PEQIS). This is the first PEQIS survey to be conducted. Westat's Project Director was Elizabeth Farris, and the Survey Manager was Laurie Lewis. Bernie Greene was the NCES Project Officer. The data were requested by Robert Davila, then Assistant Secretary of the Office of Special Education and Rehabilitative Services, U.S. Department of Education.

This report was reviewed by the following individuals:

Outside NCES

- Rhona Hartman, HEATH Resource Center, American Council on Education
- Brenda Rawlings, Center for Assessment and Demographic Studies, Gallaudet University
- Linda Ross, Office for Disability Services, Ohio State University, and consultant to the Association on Higher Education and Disability

Inside NCES

- Roslyn Korb, Postsecondary Education Statistics Division
- John Burkett and William Sonnenberg, Data Development Division
- Michael Cohen, Statistical Standards and Methodology Division
- Marilyn McMillen and Jerry West, Elementary/Secondary Education Statistics Division

For more information about the Postsecondary Education Quick Information System or the *Survey on Deaf and Hard of Hearing Students in Postsecondary Education*, contact Bernie Greene, Cross-Sectional Studies Branch, Postsecondary Education Statistics Division, National Center for Education Statistics, Office of Educational Research and Improvement, 555 New Jersey Avenue, NW, Washington, DC 20208-5651, telephone (202) 219-1366.

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APPENDIX A

TABLES OF STANDARD ERRORS

Table 1a.--Standard errors of the number and percent of 2-year and 4-year postsecondary education institutions that enrolled deaf or hard of hearing students in any (one or more) of the 4 academic years 1989-90 through 1992-93, and standard errors of the number and percent of institutions that enrolled deaf or hard of hearing students in all 4 academic years, by institutional characteristics: 1993

Institutional characteristic	Enrolled deaf or hard of hearing students in any (one or more) of the 4 years (1989-90 through 1992-93)		Enrolled deaf or hard of hearing students in all 4 years (1989-90 through 1992-93)	
	Number	Percent	Number	Percent
All institutions	94.6	1.9	52.0	1.1
Level				
2-year	51.5	2.0	24.6	1.0
4-year	73.5	3.0	47.8	2.0
Control				
Public	27.8	1.6	27.4	1.7
Private	91.4	2.9	43.7	1.4
Region				
Northeast	43.1	2.5	23.3	2.2
Southeast	43.5	4.0	26.0	2.3
Central	38.3	2.6	35.2	2.2
West	39.5	3.8	20.5	2.5
Size of institution				
Less than 3,000	94.1	2.5	48.1	1.3
3,000 to 9,999	9.3	0.9	21.5	2.6
10,000 or more	4.0	0.9	5.2	1.4

NOTE: Standard errors are computed on unrounded numbers.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Table 2a.--Standard errors of the number of deaf and hard of hearing students enrolled at 2-year and 4-year postsecondary education institutions during academic years 1989-90 through 1992-93, by hearing category: 1993

Hearing category	1989-90	1990-91	1991-92	1992-93
Total	1,370.4	1,370.4	1,330.7	1,265.9
Deaf	309.0	322.6	314.1	318.4
Hard of hearing	495.1	546.4	538.1	507.2
Did not distinguish between deaf and hard of hearing	1,032.4	1,005.0	953.1	954.2

NOTE: Standard errors are computed on unrounded numbers.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Table 3a.--Standard errors of the number of deaf and hard of hearing students enrolled at 2-year and 4-year postsecondary education institutions during academic years 1989-90 through 1992-93, by academic level: 1993

Academic level	1989-90	1990-91	1991-92	1992-93
All levels	1,370.4	1,370.4	1,330.7	1,265.9
Undergraduate	1,314.3	1,290.6	1,222.2	1,121.8
Graduate/professional	361.8	413.1	465.3	516.8

NOTE: Standard errors are computed on unrounded numbers.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Table 4a.--Standard errors of the number of deaf and hard of hearing students enrolled at 2-year and 4-year postsecondary education institutions during academic years 1989-90 through 1992-93, by institutional characteristics: 1993

Institutional characteristic	1989-90	1990-91	1991-92	1992-93
All institutions	1,370.4	1,370.4	1,330.7	1,265.9
Level				
2-year	1,222.9	1,189.0	1,131.7	1,028.5
4-year	612.2	669.3	680.3	753.3
Control				
Public	1,289.7	1,252.4	1,183.3	1,108.7
Private	410.0	482.8	541.4	594.6
Region				
Northeast	555.6	633.7	670.1	717.9
Southeast	545.9	394.1	383.9	416.1
Central	304.7	334.1	322.7	300.4
West	1,069.3	1,089.8	1,017.0	910.6
Size of institution				
Less than 3,000	972.5	910.0	955.5	928.1
3,000 to 9,999	759.4	817.0	739.8	699.4
10,000 or more	571.9	598.9	543.3	507.6

NOTE: Standard errors are computed on unrounded numbers.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Table 5a.--Standard errors of the percent distributions of students who identified themselves to the institution as deaf or hard of hearing (PEQIS survey), students who identified themselves as hearing impaired (NPSAS:90), and all students enrolled at 2-year and 4-year postsecondary education institutions, by institutional characteristics: 1993

Institutional characteristic	Students who identified themselves to the institution as deaf or hard of hearing (PEQIS survey)	Students who identified themselves as hearing impaired (NPSAS:90)	All students
Level			
2-year	3.1	1.6	0.7
4-year	3.1	1.6	0.7
Control			
Public	2.7	0.8	0.6
Private	2.7	0.8	0.6
Region			
Northeast	3.3	2.6	1.2
Southeast	2.1	3.2	1.1
Central	1.5	3.9	1.1
West	3.1	4.5	1.0
Size of institution			
Less than 3,000	3.8	3.3	0.6
3,000 to 9,999	3.0	4.8	0.6
10,000 or more	3.1	5.7	0.6

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Table 6a.--Standard errors of the number and percent of all 2-year and 4-year postsecondary education institutions that provided special support services designed for deaf and hard of hearing students to any such students in academic years 1989-90 through 1992-93, and the standard errors of the percent of institutions with deaf or hard of hearing students that provided support services to those students, by institutional characteristics: 1993

Institutional characteristic	Number of institutions that provided support services to deaf and hard of hearing students in 1989-90 through 1992-93	Percent of all institutions that provided support services to deaf and hard of hearing students in 1989-90 through 1992-93	Percent of institutions with deaf or hard of hearing students that provided support services to those students in 1989-90 through 1992-93
All institutions	76.6	1.5	2.6
Level			
2-year	41.3	1.7	4.2
4-year	55.5	2.3	4.4
Control			
Public	28.5	1.9	2.2
Private	67.1	2.1	5.0
Region			
Northeast	31.5	2.5	4.3
Southeast	45.1	4.2	5.1
Central	31.4	3.2	5.3
West	34.5	3.3	3.1
Size of institution			
Less than 3,000	75.6	1.9	4.4
3,000 to 9,999	12.7	1.1	0.9
10,000 or more	3.8	0.9	0.4

NOTE: Standard errors are computed on unrounded numbers.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Table 7a.--Standard errors of the number of students who have been provided with any special support services designed for deaf and hard of hearing students by 2-year and 4-year postsecondary education institutions during academic years 1989-90 through 1992-93, by hearing category: 1993

Hearing category	1989-90	1990-91	1991-92	1992-93
Total	1,135.7	1,087.5	1,142.5	1,137.9
Deaf	238.9	252.2	253.4	277.1
Hard of hearing	160.7	182.7	309.1	338.8
Did not distinguish between deaf and hard of hearing	1,017.1	978.9	914.4	964.7

NOTE: Standard errors are computed on unrounded numbers.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Table 8a.--Standard errors of the number of students who have been provided with any special support services designed for deaf and hard of hearing students by 2-year and 4-year postsecondary education institutions during academic years 1989-90 through 1992-93, by institutional characteristics: 1993

Institutional characteristic	1989-90	1990-91	1991-92	1992-93
All institutions	1,135.7	1,087.5	1,142.5	1,137.9
Level				
2-year	977.7	910.5	975.3	880.0
4-year	556.6	599.9	613.0	697.6
Control				
Public	1,080.3	1,012.0	1,061.5	995.8
Private	379.7	441.3	482.9	539.4
Region				
Northeast	479.0	545.7	568.5	714.8
Southeast	508.6	364.3	404.9	422.8
Central	200.3	210.9	216.7	232.9
West	904.9	885.4	830.8	744.7
Size of institution				
Less than 3,000	856.1	780.8	913.2	923.2
3,000 to 9,999	524.3	568.1	496.7	477.3
10,000 or more	488.7	456.2	445.8	455.2

NOTE: Standard errors are computed on unrounded numbers.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Table 9a.--Standard errors of the percent of deaf and hard of hearing students that were provided with special support services designed for such students during academic years 1989-90 through 1992-93, by hearing category: 1993

Hearing category	1989-90	1990-91	1991-92	1992-93
Total	2.3	2.2	2.2	2.0
Deaf	1.8	1.5	1.4	1.7
Hard of hearing	3.1	2.9	2.6	2.9
Did not distinguish between deaf and hard of hearing	2.8	2.6	2.6	2.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Table 10a.--Standard errors of the number of students who have been provided with any special support services designed for deaf and hard of hearing students, and the standard errors of the number of students to whom each type of support service has been provided by 2-year and 4-year postsecondary education institutions during academic years 1989-90 through 1992-93: 1993

Support service	1989-90	1990-91	1991-92	1992-93
Provided with any support service	1,135.7	1,087.5	1,142.5	1,137.9
Type of support service provided				
Sign language interpreters/transliterators	973.1	890.7	869.8	774.8
Oral interpreters/transliterators	358.3	431.5	376.4	380.2
Classroom notetakers	728.3	643.8	662.4	683.7
Tutors to assist with ongoing coursework	591.4	393.5	311.6	341.3
Assistive listening devices	51.5	68.5	68.7	77.4
Other support services	301.8	291.8	316.8	411.7

NOTE: Standard errors are computed on unrounded numbers.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Table 11a.--Standard errors of the number of students who have been provided with any special support services designed for deaf and hard of hearing students by 2-year and 4-year postsecondary education institutions during academic year 1992-93, and the standard errors of the percent of those students provided with each type of support service, by institutional characteristics: 1993

Institutional characteristic	Number provided with any support service	Percent provided with specific services					
		Sign language interpreters	Oral interpreters	Classroom notetakers	Tutors to assist with ongoing coursework	Assistive listening devices	Other support services
All institutions	1,137.9	2.4	2.3	3.5	2.0	0.7	2.4
Level							
2-year	880.0	3.4	3.7	4.6	3.3	0.7	2.9
4-year	697.6	6.0	0.6	4.9	3.5	1.3	3.5
Control							
Public	995.8	2.6	6.1	3.4	2.3	0.6	2.5
Private	539.4	14.9	5.4	13.9	10.2	3.3	4.9
Region							
Northeast	714.8	9.0	0.6	8.6	4.6	1.4	7.3
Southeast	422.8	4.3	0.9	6.7	4.5	1.6	4.8
Central	232.9	4.6	0.7	4.9	3.8	1.0	4.2
West	744.7	4.7	5.3	5.1	3.3	0.8	3.3
Size of institution							
Less than 3,000	923.2	6.0	1.6	13.9	9.7	1.5	5.1
3,000 to 9,999	477.3	4.0	8.1	6.0	3.7	1.5	5.2
10,000 or more	455.2	1.8	0.5	2.7	1.5	0.4	2.8

NOTE: Standard errors are computed on unrounded numbers.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Table 12a.--Standard errors of the percent of 2-year and 4-year postsecondary education institutions indicating various primary points of contact for the provision of support services to deaf and hard of hearing students, by institutional characteristics: 1993

Institutional characteristic	Office devoted entirely to services for students with disabilities	Coordinator devoted entirely to services for students with disabilities, but located within another office	Person or office on campus responsible for services to students with disabilities, in addition to other duties	Person or office on campus provides these services when the need arises	Other primary point of contact
All institutions	0.5	0.3	2.6	2.5	0.3
Level					
2-year	1.0	0.5	4.7	4.0	0.6
4-year	0.7	0.5	1.9	2.1	0.3
Control					
Public	1.6	0.8	2.8	2.2	0.5
Private	0.4	0.3	3.5	3.2	0.5
Region					
Northeast	1.0	1.1	3.3	3.7	0.3
Southeast	1.3	1.1	4.2	4.4	0.4
Central	1.5	0.7	3.6	3.3	0.9
West	1.7	0.4	4.6	5.5	1.1
Size of institution					
Less than 3,000	0.5	0.4	3.4	3.2	0.4
3,000 to 9,999	1.7	1.1	1.9	1.5	0.2
10,000 or more	1.8	0.8	1.8	0.4	--

-- Estimate of standard error is not derived because it is based on a statistic estimated at 0 percent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Table 13a.--Standard errors of the estimated number and percent of 2-year and 4-year postsecondary education institutions in the nation, by institutional characteristics: 1993

Institutional characteristic	National estimate	
	Number	Percent
All institutions	27.1	--
Level		
2-year	24.7	0.4
4-year	22.6	0.4
Control		
Public	15.2	0.3
Private	27.9	0.3
Region		
Northeast	68.2	1.4
Southeast	45.5	0.9
Central	63.7	1.4
West	84.8	1.6
Size of institution		
Less than 3,000	27.7	0.2
3,000 to 9,999	8.0	0.2
10,000 or more	3.7	0.1

-- Estimate of standard error is not derived because it is based on a statistic estimated at 100 percent.

NOTE: Standard errors are computed on unrounded numbers.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

Table 14a.--Standard errors for the figures and for data not shown in tables: 1993

Item	Estimate	Standard error
Figure 1: Percent of institutions that enrolled any deaf or hard of hearing students		
1989-90	32	1.2
1990-91	36	1.6
1991-92	40	1.9
1992-93	41	1.8
Figure 3: Percent of institutions that provided support services designed for deaf and hard of hearing students to any such students, based on all institutions and based on those institutions that enrolled any such students in that academic year		
All institutions, 1989-90	25	0.9
All institutions, 1990-91	29	1.0
All institutions, 1991-92	31	1.2
All institutions, 1992-93	33	1.4
Institutions that enrolled, 1989-90	79	2.9
Institutions that enrolled, 1990-91	80	2.8
Institutions that enrolled, 1991-92	78	2.9
Institutions that enrolled, 1992-93	80	2.9
Figure 4: Percent of institutions that provided specific support services to deaf and hard of hearing students, based on those institutions that had provided any support services to deaf or hard of hearing students		
Classroom notetakers	75	2.5
Sign language interpreters	67	2.1
Tutors to assist with ongoing coursework	65	1.7
Assistive listening devices	33	2.5
Other support services	29	1.6
Oral interpreters	20	1.5
Figure 5: Percent of institutions that had been unable to provide requested support services to deaf or hard of hearing students and the percent of institutions that had been unable to provide each service, based on those institutions that had enrolled deaf or hard of hearing students		
Unable to provide some requested service	18	1.7
Sign language interpreters	14	1.6
Assistive listening devices	6	1.0
Tutors to assist with ongoing coursework	4	0.7
Classroom notetakers	3	0.7
Oral interpreters	3	0.5
Some other requested service	2	0.4

Table 14a.--Standard errors for the figures and for data not shown in tables: 1993--Continued

Item	Estimate	Standard error
Figure 6: Percent of institutions that had an office or coordinator devoted entirely to services for deaf or hard of hearing students		
All institutions	4	0.5
Institutions with less than 3,000 students	2	0.6
Institutions with 3,000 to 9,999 students	4	1.2
Institutions with 10,000 or more students	25	1.5
Figure 7: Percent of institutions indicating which kinds of information would be most useful to them in regard to providing services to deaf and hard of hearing students		
Technologies or devices for service provision	66	1.8
1990 Americans with Disabilities Act	61	1.9
Section 504 of the 1973 Rehabilitation Act	46	2.3
Assistance about general service provision	39	1.8
How or where to find qualified service providers	31	2.7
Assistance about service provision to specific students	23	2.1
Figure 8: Percent of institutions giving each rank from 1 (most likely) to 4 (least likely) for the likelihood of using each information source to obtain information about providing services to deaf and hard of hearing students		
Newsletter: 1 (most likely)	45	2.1
Newsletter: 2	20	1.6
Newsletter: 3	27	1.8
Newsletter: 4 (least likely)	9	0.8
Resource/technical assistance center: 1 (most likely)	28	2.3
Resource/technical assistance center: 2	31	2.3
Resource/technical assistance center: 3	33	1.8
Resource/technical assistance center: 4 (least likely)	8	1.8
Information clearinghouse: 1 (most likely)	21	1.2
Information clearinghouse: 2	39	2.1
Information clearinghouse: 3	28	2.2
Information clearinghouse: 4 (least likely)	12	1.1
Electronic bulletin board: 1 (most likely)	6	0.9
Electronic bulletin board: 2	11	1.5
Electronic bulletin board: 3	12	1.1
Electronic bulletin board: 4 (least likely)	71	2.0
Section 2: Enrollment in Postsecondary Education Institutions		
Mean number of students enrolled in 1992-93 who identified themselves to the institution as deaf or hard of hearing	9.8	0.6
Section 3: Provision of Support Services		
Mean number of students who received support services designed for deaf and hard of hearings students in 1992-93	9.8	0.7

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, Survey on Deaf and Hard of Hearing Students in Postsecondary Education, 1993.

APPENDIX B

SURVEY QUESTIONNAIRE

U.S. DEPARTMENT OF EDUCATION NATIONAL CENTER FOR EDUCATION STATISTICS WASHINGTON, D.C. 20208-5651 **DEAF AND HARD OF HEARING STUDENTS IN POSTSECONDARY EDUCATION** POSTSECONDARY EDUCATION QUICK INFORMATION SYSTEM	FORM APPROVED O.M.B. No.: 1850-0679 EXPIRATION DATE: 12/93

This survey is authorized by law (20 U.S.C. 1221e-l). While you are not required to respond, your cooperation is needed to make the results of this survey comprehensive, accurate, and timely.

DEFINITIONS FOR THIS SURVEY:

Sign language interpreters/transliterators use manual communication for voice to sign interpretation and sign to voice interpretation.

Oral interpreters/transliterators facilitate lipreading by silently repeating what is being said, often with facial and/or gestural enhancements and semantic rewording of words or phrases that are difficult to lipread.

Classroom notetakers take notes for deaf and hard of hearing students during class sessions, so that these students can focus their attention on the instructor and/or interpreter.

Tutors to assist with ongoing coursework know the subject area, how to teach it, and how to communicate with deaf and hard of hearing students to provide additional assistance with coursework.

Assistive listening devices are systems for the classroom or lecture hall that augment and clarify sound. Examples are personal and group FM systems, loop systems, and infrared systems.

Information clearinghouse is an information resource that provides general information and referral services on identified topics.

Resource/technical assistance center is an information resource that provides consultation, technical assistance, and related services in response to specific inquiries. Responses and services are usually tailored to the individual request.

Please complete the applicable sections of the questionnaire regardless of whether your institution enrolls any deaf or hard of hearing students.

AFFIX LABEL HERE

IF ABOVE INFORMATION IS INCORRECT, PLEASE UPDATE DIRECTLY ON LABEL.

Name of Person Completing This Form:_____ Telephone Number:_____

Title/position:_____

PLEASE KEEP A COPY OF THIS SURVEY FOR YOUR RECORDS

RETURN COMPLETED FORM TO:	IF YOU HAVE ANY QUESTIONS, CALL:
WESTAT, INC. 1650 Research Boulevard Rockville, Maryland 20850 ATTN: Lewis, 923752	Laurie Lewis at Westat, 9:00 - 5:00 p.m., EST 800-937-8281, Ext. 8284 or 301-251-8284 For TDD call the National Relay Service collect at 317-925-2544

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the U.S. Department of Education, Information Management and Compliance Division, Washington, D.C. 20202-4651; and to the Office of Management and Budget, Paperwork Reduction Project 1850-0679, Washington, D.C. 20503.

1a. During the last 4 academic years (1989-90 through 1992-93), have there been any students enrolled at your institution who identified themselves to your institution as deaf or hard of hearing? ☐ Yes; ☐ No *(skip to Q5a)*.

1b. Please provide the number of deaf and hard of hearing students enrolled at your institution in academic years 1989-90 through 1992-93. If possible, please report the number of students who are deaf separately from the number of students who are hard of hearing. If it is not possible to separate these two groups of students, please report them together on the third line of the grid. Enter "NA" if your institution does not enroll some of the categories of students listed (e.g., enrolls no graduate/professional students.) Enter zero if your institution enrolls those categories of students, but did not have any deaf or hard of hearing students in those categories.

Hearing level	AY 89-90		AY 90-91		AY 91-92		AY 92-93	
	Under-graduate	Graduate/ Professional	Under-graduate	Graduate/ Professional	Under-graduate	Graduate/ Professional	Under-graduate	Graduate/ Professional
Deaf								
Hard of hearing								
If students cannot be reported separately: Deaf or hard of hearing								

2a. During the last 4 academic years (1989-90 through 1992-93), has your institution provided any special support services designed for deaf and hard of hearing students (e.g., interpreters, notetakers, tutors, assistive listening devices) to any deaf or hard of hearing students? ☐ Yes; ☐ No *(skip to Q4a)*.

2b. Please indicate the number of deaf and hard of hearing students (both undergraduate and graduate/professional) to whom any special support services designed for deaf and hard of hearing students have been provided by your institution. If possible, please report the number of students who are deaf separately from the number of students who are hard of hearing. If it is not possible to separate these two groups of students, please report them together on the third line of the grid.

Hearing level	AY 89-90	AY 90-91	AY 91-92	AY 92-93
Deaf				
Hard of hearing				
If students cannot be reported separately: Deaf or hard of hearing				

3. For each type of special support service designed for deaf and hard of hearing students listed below, indicate the **number of deaf or hard of hearing students to whom your institution has provided that service** in the last 4 academic years (1989-90 through 1992-93). If a student received multiple services, count the student for each service received.

Support service	AY 89-90	AY 90-91	AY 91-92	AY 92-93
a. Sign language interpreters/transliterators				
b. Oral interpreters/transliterators				
c. Classroom notetakers				
d. Tutors to assist with ongoing coursework				
e. Assistive listening devices				
f. Other; specify:				

4a. Colleges and universities are required to provide reasonable accommodations to ensure equal access to educational opportunities for students with disabilities. Sometimes, however, institutions may be asked to provide services that are considered to be outside the scope of reasonable accommodations for the situation at that particular institution. In other instances, institutions may not be able to provide services at the level requested, due to circumstances beyond their control, such as too few sign language interpreters available. **In the last 4 academic years (1989-90 through 1992-93), has your institution been asked to provide any support services to deaf or hard of hearing students that the institution was unable to provide (either at all, or at the level requested)?** ☐ **Yes**; ☐ **No** *(skip to Q5a)*.

4b. **IF YES TO Q4A:** In **Section A**, check each support service for deaf and hard of hearing students that your institution was unable to provide upon request during the last 4 years, either at all or at the level requested. For each support service that your institution was unable to provide, check the reasons the service was not provided in **Section B**.

	Sign language inter-preters	Oral inter-preters	Classroom note-takers	Tutors to assist with ongoing coursework	Assistive listening devices	Other support services
A. Institution unable to provide this service, either at all or at level requested						
B. Reasons for not being able to provide service: *(Check all that apply)*						
a. Not enough qualified personnel (e.g., sign language interpreters)						
b. Qualified personnel take better jobs outside the institution						
c. Necessary equipment is not available						
d. Money to provide the service is not available						
e. Service requested was not considered reasonable or necessary for the institution to provide						
f. Other reason; specify:						

5a. Please indicate the primary point of contact on your campus for the provision of special support services to deaf and hard of hearing students. *(Check only one)*

☐ An office devoted entirely to services for students with disabilities
☐ A coordinator devoted entirely to services for students with disabilities, but located within another office
☐ A person or office on campus is responsible for services to students with disabilities, in addition to other duties
☐ A person or office on campus is asked to provide these services when the need arises
☐ Other; specify _____

5b. Does your institution have an office or coordinator devoted entirely to services for deaf and hard of hearing students?
☐ Yes; ☐ No.

6. The Department of Education is interested in knowing what kinds of information would be most useful to your institution in regard to providing services to deaf and hard of hearing students. Please check **up to three** kinds of information that would be most useful to your institution. This will be used by the Department of Education for planning purposes only.

☐ What is required of postsecondary institutions under Section 504 of the Rehabilitation Act of 1973, as amended
☐ What is required of postsecondary institutions under the 1990 Americans with Disabilities Act
☐ What kinds of technologies or devices are available for postsecondary institutions to use in providing services to deaf and hard of hearing students
☐ How or where to find qualified persons to provide special services such as sign language or oral interpreting
☐ Assistance in deciding how best to provide services to deaf or hard of hearing students generally
☐ Assistance in deciding how best to provide services to <u>specific</u> deaf or hard of hearing students

7. Please rank from 1 (most likely) to 4 (least likely) the following information delivery mechanisms in the order in which you would be most likely to use them to obtain information about providing services to deaf and hard of hearing students.

____ Information clearinghouse
____ Resource/technical assistance center
____ Newsletter
____ Electronic bulletin board

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